

-20V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

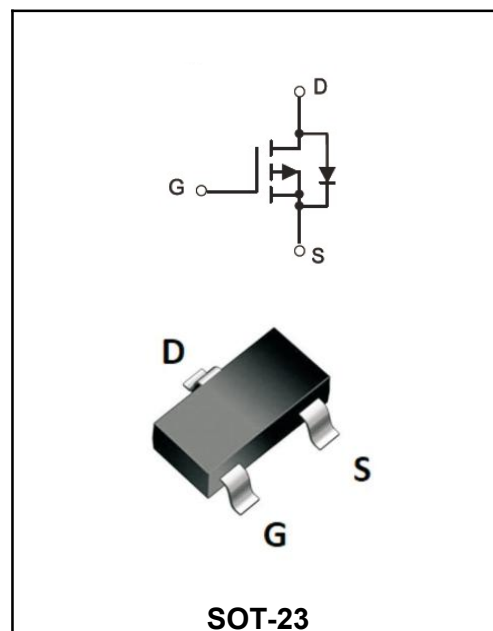
I_D	-3A
V_{DSS}	-20V
$R_{DS(on)-typ}(@V_{GS}=-4.5V)$	$< 112m\Omega$ (Type: 90 m Ω)
$R_{DS(on)-typ}(@V_{GS}=-2.5V)$	$< 142m\Omega$ (Type: 110m Ω)

Features

- ◆TrenchFET Power MOSFET
- ◆Load Switch for Portable Devices.
- ◆DC/DC Converter

Mechanical Data

- ◆SOT-23 Small Outline Plastic Package.
- ◆Epoxy UL: 94V-0.
- ◆Mounting Position: Any.



Marking Code	
YFW2301B	S1

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameters	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-3	A
Pulsed Drain Current	I_{DM}	-10	
Continuous Source-Drain Diode Current	I_S	-0.72	A
Pulsed Drain Current	P_D	400	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55-+150	°C
Thermal Resistance From Junction to Ambient	$R_{\theta JA}$	312.5	°C/W

Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

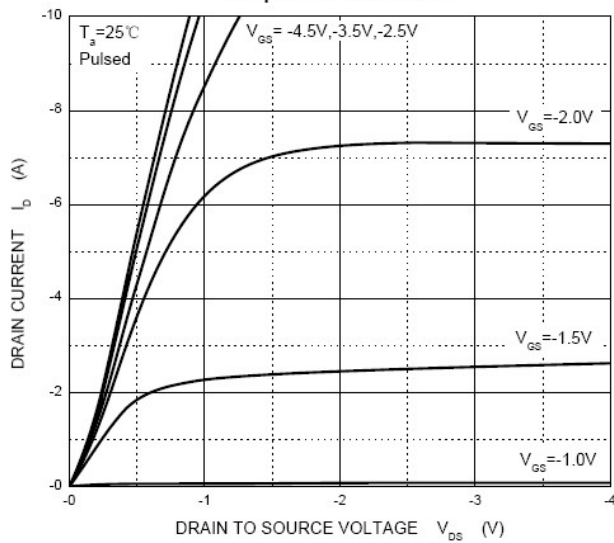
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.7	-1.0	V
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 8V$			± 100	nA
Zero Gate Voltage Drain current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Drain-Source On-Resistance ^(a)	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-2.8A$		90	112	m Ω
		$V_{GS}=-2.5V, I_C=-2A$		110	142	
Forward trans conductance ^(a)	g_{fs}	$V_{DS}=-5V, I_D=-2.8A$		6.5		S
Input capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$			405	pF
Output capacitance	C_{oss}				75	
Reverse Transfer capacitance	C_{rss}				55	
Total gate charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-3A$		5.5	10	nC
Gate-source charge	Q_{gs}	$V_{DS}=-10V, V_{GS}=-2.5V, I_D=-3A$		3.3	6	
Gate-drain charge	Q_{gd}			0.7		
Gate resistance	R_g	$F=1MHz$		6.0		
Turn-on Time	$t_{d(on)}$	$V_{DD}=-10V, R_L=10\Omega, V_{GEN}=-4.5V, I_D=-1A, R_G=1\Omega$		11	20	ns
Rise time	t_r			35	60	
Turn-off Time	$t_{d(off)}$			30	50	
Fall time	t_f			10	20	
Continuous source-drain diode current	I_S	$T_C=25^\circ C$			-3	A
Pulse diode forward current ^(a)	I_{SM}				-10	
Body diode voltage	V_{SD}	$I_S=-0.7A,$		-0.8	-1.2	V

Notes: a. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

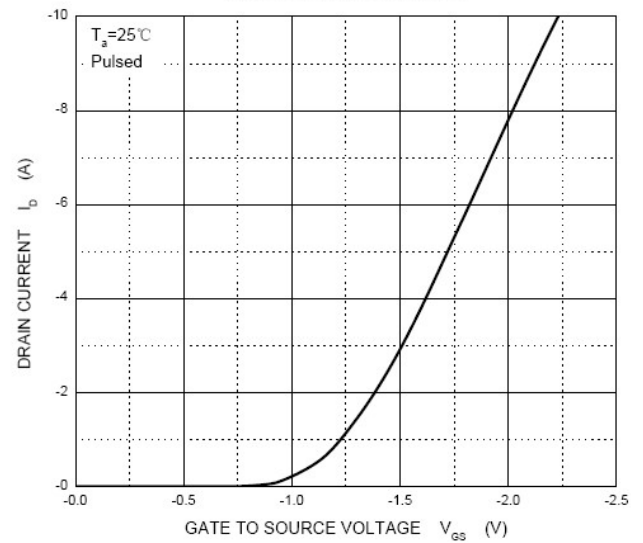
b. Guaranteed by design, not subject to production testing.

Typical characteristics

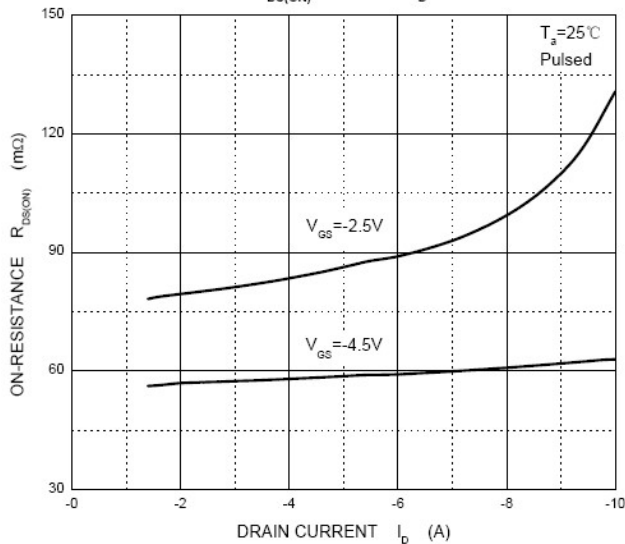
Output Characteristics



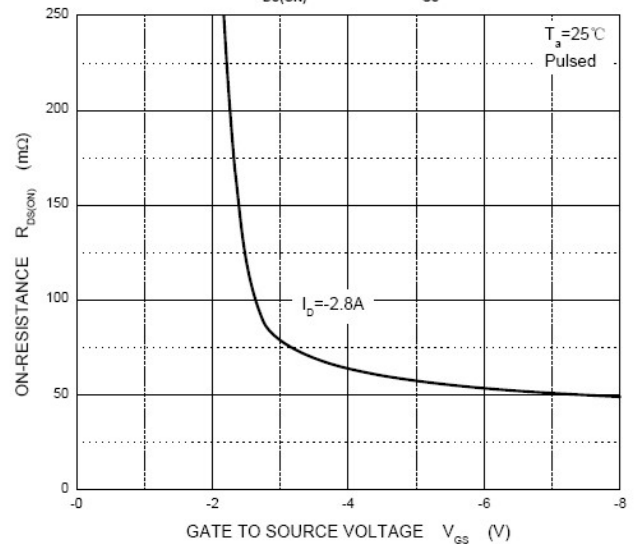
Transfer Characteristics



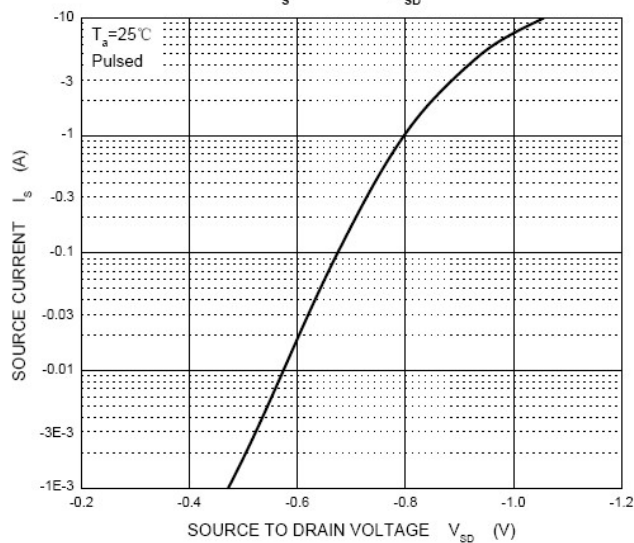
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Ordering information

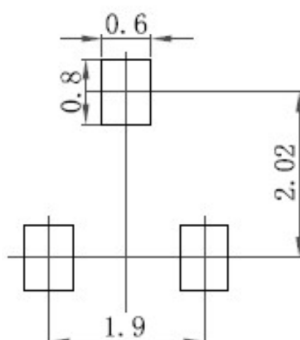
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



Disclaimer

The information presented in this document is for reference only. Guangdong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website <https://www.yfwdiode.com>, or consult YFW sales office for further assistance.